



SDMS DocID

274569

Superfund Records Center

SITE: New Bedford

BREAK: 4.2.8

CIRCUIT: 274569

4.2.1

NEW BEDFORD HARBOR
PILOT PROJECTTECHNICAL OBJECTIVES

- a) Determine the efficiency of dredging for removal of contaminated sediment
- b) Evaluate actual sediment resuspension and contaminant release during field conditions selected for dredging equipment, operational controls and turbidity containment techniques.
- c) Refine and scale up laboratory data for design of disposal/treatment processes for contaminated dredged material from New Bedford.
- d) Develop and field test procedures for construction of confined aquatic disposal cells for contaminated dredged material under site specific conditions.
- e) Evaluate containment of PCBs in diked disposal areas and confined aquatic disposal cells filled with contaminated dredged material.
- f) Assess solidification techniques for contaminated dredged material with respect to implementability.
- g) Establish realistic cost data for dredging and disposal of New Bedford Harbor sediment.

MONITORING PROGRAM

There are two overall objectives of the monitoring program:

- a) To collect adequate laboratory and field data to support the technical objectives of the Pilot Study.
- b) To collect adequate information to insure that public health and the environment are protected during and after the Pilot Study.

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TASK II WATER QUALITY MONITORING

OBJECTIVES

- a) Determine the effects of all phases of the operation on contaminant release and transport
- b) Determine the impact of contaminant release on ambient water column toxicity
- c) Determine the biological availability of released contaminants

APPROACH

- a,b) Ebb and flood composite water samples, collected at four stations during each operational phase:

pre-operation

dike construction

dredge to CDF

dredge to CAD

post operation

- * analyze for PCBs, metals, TOC (whole water and filterable)
- * measure suspended solids
- * sperm cell test
- * two and seven day receiving water tests

- b) Deploy caged mussels at four stations during each project phase

- * analyze growth and scope for growth at days 7 and 28
- * analyze tissue residues (PCBs, metals) at days 3,7 and 28

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TASK III DREDGE EQUIPMENT EVALUATION

OBJECTIVE

Determine the level of sediment resuspension and contaminant migration associated with different dredges and operating procedures.

APPROACH

- a) Monitor the operating dredge for position, water depth, pump power, pumping rate, slurry concentration, depth of cut, width of cut, speed of forward progress, cutterhead swing speed and rotation rate where appropriate.
- b) dredge head sampling
- c) plume sampling - samples taken hourly while dredge is operating during first three days of operation for each dredge.
 - * analyze suspended solids
 - * analyze a limited number of samples for PCBs, metals

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TASK IV, V CDF EFFLUENT AND TREATMENT EVALUATIONS

OBJECTIVE

Determine the effectiveness of the CDF in containing and sequestering contaminants

APPROACH

24 hourly samples, composited, during contaminated sediment dredging and filling

10 sample events on:

primary cell effluent
secondary cell effluent
after filtration
after carbon absorption

- * analyze suspended solids
- * analyze PCBs, metals (whole water, filterable)
- * sperm cell test
- * two and seven day receiving water tests
- * chemical fractionation/sperm cell test

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TASK VI CAD EVALUATION

OBJECTIVE I

- a) Determine if the contaminant mass has been effectively removed and placed in the CAD
- b) Assess the capability to place a cap and sequester these contaminants

APPROACH

20 composites of 5 - 5' cores with 6, 0.5' horizons

- * analyze for PCBs
- * Ampelisca sediment toxicity

OBJECTIVE II

Determine the rate of sediment resuspension, plume generation and plume movement.

APPROACH

The approach would be the same as described in TASK III

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TASK VII EFFICIENCY OF DREDGING

OBJECTIVE

Determine the effectiveness of the dredges in removing the contaminated sediment.

APPROACH

10 surface cores, before and after passes of each dredge type

- * analyze for PCBs, metals

TASK VIII LEACHATE MONITORING

OBJECTIVE

Determine if contaminants are migrating through the bottom and dikes of the CDF

APPROACH

10 monitoring wells installed in the dikes and bottom of CDF

Wells sampled prior to filling CDF, on 6 occasions during the pilot study and quarterly for two years.

- * analyze for PCBs, metals, TOC

TASK IX SURFACE RUNOFF MONITORING

OBJECTIVE

Determine the quality of surface runoff from the CDF after dredging into the site is completed.

APPROACH

Samples collected from the weir of the primary CDF cell at time intervals of .25 - 1.0 hours for the duration of a storm event and until the flow rate has peaked. Minimum of 10 discrete samples.

- * analyze for PCBs, metals

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BLE 1. SUMMARY OF MONITORING PROGRAM TASKS AND ELEMENTS BY PHASE

TASK NO.	TASK DESCRIPTION	ELEMENT DESCRIPTION	PHASE				
			1	2	3	4	5
1	SEDIMENT CHARACTERIZATION	SEDIMENT COLLECTION	X				
		PHYSICAL CHARACTERIZATION	X				
		CHEMICAL ANALYSIS	X				
		ELUTRIATE TESTS	X				
		AMPHIPOD TESTS	X				
		SPERM CELL TESTS	X				
2	WATER QUALITY MONITORING	PRE-DREDGING CONDITIONS	X				
		DIKE CONSTRUCTION		X			
		DREDGING/FILLING CDF			X		
		DREDGING/FILLING THE CAD				X	
		POST PROJECT					X
3	DREDGING EQUIPMENT EVALUATION	DREDGE INFORMATION			X		
		DREDGE HEAD SAMPLING			X		
		PLUME SAMPLING			X		
		PCB ANALYSES			X		
4	CDF EVALUATION	EFFLUENT SUSPENDED SOLIDS			X		
		EFFLUENT PCB CONCENTRATION			X		
		2 AND 7 DAY TOXICITY TESTS			X		
		SPERM CELL TESTS			X		
5	CDF EFFLUENT TREATMENT EVALUATION	CHEMICAL CLARIFICATION			X		
		PCB REMOVAL			X		
		2 AND 7 DAY TOXICITY TESTS			X		
		SPERM CELL TESTS			X		
6	CAD EVALUATION	PLUME SAMPLING					X
		PCB ANALYSES					X
		CAP EVALUATION					X
		AMPHIPOD TESTS					X
7	EFFICIENCY OF DREDGING	SEDIMENT SAMPLING			X		
		SEDIMENT ANALYSES FOR PCBs			X		
8	LEACHATE MONITORING	WELL INSTALLATION			X		
		LEACHATE SAMPLING		X	X	X	X
		LEACHATE ANALYSES		X	X	X	X
9	SURFACE RUNOFF MONITORING	RUNOFF SAMPLE COLLECTION				X	
		RUNOFF SAMPLE ANALYSES				X	

PHASES 1 Pre Operational 4 Dredge to CAD
2 DiKE Construction 5 Post Operational
3 Dredge to CDF

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PRE-OPERATION

DIKE CONSTRUCTION

1987

$$X \text{-----} X \text{-----} X$$

J F M A M J J A S O N D

2 MD
2 RWT
5 SCT,C,SS
1 SD,C,A,

1 MD
1 RWT
17 SCT,C,SS

DREDGING
TO CDF TO CAD

POST - OPERATION

X-----X-----X-----

1988

J F M A M J J A S O N D

1 MD	1 MD
3 RWT	1 RWT
90 SCT,C,SS	7 SCT,C,SS

2 MD
2 RWT
5 SCT,C,SS
2 SD,C,A

POST - OPERATION

1989

J F M A M J J A S O N D

MD - mussel deployments
RWT - receiving water tests
SCT - sperm cell test
C - chemistry

SS - suspended solids
SD - sediment sampling
A - amphipod tests

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PILOT PROJECT
MANAGEMENT TEAM

